Renumbered claims per. Rule 126.

CLAIMS

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent is:

1. A UV-curable adhesive composition comprising:
a vinyl-ether terminated urethane; and
a poly-functional mercaptan.

2. The UV-curable adhesive composition, according to claim 1, wherein said urethane is synthesized from at least one polyester polyol and at least one aliphatic diisocyanate.

3. The UV-curable adhesive composition, according to claim 1, wherein said urethane has a molecular weight, $<M_n>$, in the range of 1000 to 50,000, more preferably 2000 to 12,000 and most preferably 3000 to 7000.

R126 4. The UV-curable adhesive composition, according to claim 1, wherein said polyol has a molecular weight in the range of from about 1000 to about 3200 AMU.

5. The UV-curable adhesive composition, according to claim 1, wherein said diisocyanate is selected from the group consisting of Desmodur W, IPDI, and TMDI.

6. The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan has at least 2 thiol groups.

Rl 2d 7 8. The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan is selected from the group consisting of

ethylene bis(3-mercaptopropionate),
trimethylolpropane tris(2-mercaptoacetate),
trimethylolpropane tris(3-mercaptopropionate),
triethyl-1,3,5,-triazine-2,4,6-trione tris(3-mercaptopropionate),
pentaerythritol tetrakis(2-mercaptoacetate),
pentaerythritol tetrakis(3-mercaptopropionate),
dimethyl bis(3-mercaptopropyl)silane,
1,6-hexanedithiol,
1,10-decanedithiol, and
3,6-Dioxaoctane-1,8-dithiol.

8 ø. The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan is a 3-mercaptopropionic acid ester of a polyhydroxy compound.

Rl 2d 9 1ø. The UV-curable adhesive composition, according to claim 8 ø, wherein said polyhydroxy compound is selected from the group consisting of glycols, propylene glycol, butanediol, hexanediol, cyclohexanedimethanol, glycerol, polyethylene glycol, polypropylene glycol, and polyester polyols.

10 1 1. The UV-curable adhesive composition, according to claim 1, wherein said poly-functional mercaptan is trimethylpropane tris(trimercaptopropionate).

11/12. The UV-curable adhesive composition, according to claim 1, further comprising at least one additive selected from the group consisting of polymerization inhibitors, antioxidants, tackifiers, flow and leveling agents, pigments, fillers, odor-masking agents, and UV-stabilizers.

12/13. A thiolene composition comprising the reaction product of:
a vinyl-ether terminated urethane; and
a poly-functional mercaptan, wherein
said composition is crosslinked with a curing agent.

13/14. The thiolene composition, according to claim 10/11, wherein said curing agent is ultraviolet light.

14/15. A thiol-ene formulation curable to a crosslinked polymer comprising:
a polyfunctional mercaptan; and
a vinyl-terminated urethane.

15/16. An adhesive product comprising
a layer of a backing material; and
a layer of a curable thiol-ene formulation comprising:
a polyfunctional mercaptan, and
a vinyl-terminated urethane, wherein said thiol-ene formulation is cured to a crosslinked polymer.

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16 17. A method of using a curable thiol-ene formulation comprising:

providing a backing material;

providing on said backing material a layer of a curable thiol-ene formulation comprising:

a polyfunctional mercaptan, and

a vinyl-terminated urethane; and

curing said thiol-ene formulation.

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17 18. The method of using a curable thiol-ene formulation, according to claim 16 17, further comprising applying said formulation with a hot-melt coater.

18 19. A hot-melt coater containing the curable thiol-ene formulation of claim 1.